DataFax™

Preliminary Documentation

64K

Requires a 64K Apple II™ or Apple II+™ and 2 disk drives.

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LINK SYSTEMS™

Simply powerful software™

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TABLE OF CONTENTS

Registration
License Agreement
Reward Notice
Preface
Introduction
Chapter 1
- Getting Started -1
- Booting DATAFAX -1
- First Things First -2

Chapter 2
- Setting up a DataBase -1
- Using Datafax - Tutorial -1

Chapter 3
- Data Organization -1
- Program Organization -2
- Folder Searching -3

Chapter 4
- The Screen Editor -1
- Cursor Movements -2
- Editing commands -2
- Leaving the editor -3
- Miscellaneous commands -3
- Screen commands -3
- Key commands -4

Chapter 5
- New -1
- Examine -1
- Scan -1
- Print -2
- Delete -2
- Keys -2
- AutoKeys -3
- File -3
- Load -3
- Unload -5
- Term -7
- Version -8
- Quit -8

Appendices
- Hardware requirements A
- Setting up your Apple][B
- Slot dependencies C
- Disk drive numbers D
- Backing up diskettes E
- Formatting diskettes F
- Types of diskettes G
- Error Handling H
- Input Output error codes I

Important Message to the Purchaser

The package which you have just acquired contains the complete software program "DATAFAX(tm)". Unfortunately, the documentation was not yet available for distribution, and those who had seen DATAFAX in operation wanted the opportunity to purchase it now. In order to meet this demand, we are supplying only preliminary documentation to accompany the software.

The final product version with the complete documentation will be available to all purchasers of DataFax at no additional cost.

In order to obtain your copy as soon as it is available, please complete the registration form below and return it to Link Systems.

Thank you in advance for your cooperation.

Customer Service
LINK SYSTEMS

REGISTRATION FOR PRELIMINARY VERSION OF DATAFAX

The undersigned purchaser of DATAFAX(tm) Serial # A6033 has read, fully understood and agreed to the Link Systems Software License Agreement relating to the use of this software package.

Please send the final product version, when available, to the undersigned at no additional charge.

Customer Name _____

Address _____

City _____ State _____

Zip _____ Telephone Number _____

Signature of Purchaser _____

Dealer _____ Purchase Date _____

City _____ State _____ Zip _____

CONGRATULATIONS!

You've just made organizing your affairs a lot easier and simpler -- because you're now in possession of DATAFAX.

At Link Systems we're always interested in making our software as easy as possible for people to use. That's why we did not put any copy locks on DATAFAX. It'll make it a lot easier for you to use with various disk configurations, and it enables you to make backups, an exercise we heartily encourage you to engage in.

Of course, we're just as interested in preventing our products from being stolen through unauthorized duplication. Even though every copy of DATAFAX contains a unique serial number for identification, we realize that releasing a product without a copy protection scheme leaves us open to software thieves.

So we're making this appeal : If you know of anyone making unauthorized copies of DATAFAX, we'd appreciate hearing about that individual - as soon as possible. In fact, if you can give us information leading to the conviction of anyone ripping us (and by extension every software purchaser) off, we'll return the favour with a $1000 reward.

PREFACE

Everyone has a need to keep track of information. That's why we created DATAFAX.

But most people have no accurate, reliable means of keeping track of recipes, customer lists, bibliographies, lecture notes, names and addresses or appointments in a way that's meaningful to them.

And - even more importantly - that's also why we created DATAFAX.

DATAFAX is for English teachers, plumbers, homemakers, executive vice presidents, freelance writers, contractors, coin collectors - butchers, bakers, and candlestick makers.

DATAFAX won't make you smarter. But it can help you organize all the information in your life a lot more intelligently. So you'll be freer to do the things you really need to do. Or want to do.

We made DATAFAX simple to learn and use. And we kept it unstructured. That's important. As an unstructured system, DATAFAX will adjust to your needs. It will never make your computer dictate to you how much information you can ask it to remember. Or how it's arranged. Or what you can do with it.

We leave those details up to you. DATAFAX does the rest.

So start getting acquainted with DATAFAX. And have fun.

Because you and DATAFAX were made for each other.

INTRODUCTION

Decisions decisions, decisions.

Every day - whether you realize it or not - you make important decisions which affect how you organize the masses of information necessary to living your life. At home. At work. And out in the world.

Because the conditions affecting these decisions can change quickly, the best kind of information system ought to let you store your information in a number of ways. Then you have more flexibility in accessing information than if you were forced to keep it in one place, filed under one category and accessible through only one channel.

Unfortunately, if you're using a manual system (with file folders and filing cabinets), that is the way you're forced to deal with information right now - that is, one category to each piece of information.

And that doesn't do you much good. Because information should not only be available instantly and in a variety of ways. It should also be adaptable to changing contingencies and purposes. Because people's needs for specific kinds of information change constantly - and unpredictably.

So when it comes to accessing information, you need options. And you need more - a system of storing and retrieving information that you can arrange yourself. An arrangement that makes sense to you. And that you can change as your information needs change.

And that's what DATAFAX is all about.

DATAFAX is designed to fit everyone's general need to keep track of information. It is an easily used, flexible tool that can adapt itself to almost anyone's personal way of dealing with notes or other information that's normally written down. So you'll always be able to shape (or reshape) the system to the way you think and make decisions about storing information.

To understand just how versatile and useful the DATAFAX system is, first you have to get used to a whole new concept of power. The word power in a data processing context is used to describe the capacity of a computer system to fulfill your processing requirements.

Because DATAFAX is powerful, it allows you to enter almost any verbal information you want, in any form you want - unstructured notes, lists, tables, fragments, whatever. You're never locked into a predetermined structure. And the power of DATAFAX also means you can categorize and cross-reference information in a number of ways, and all with one goal in mind - to make handling and accessing all the information you need easy, fast and efficient.

That means no more drawers full of notes written on cocktail napkins, names and addresses on torn-off corners of phone books, book titles written on the backs of magazines - or any of the other million-and-one scraps of paper you may have floating around your life. DATAFAX is designed to eliminate an awful lot of that clutter - so instead of keeping track of information, you can get down to putting it to work for you.

Before describing exactly how DATAFAX works, it might be best to tell you what DATAFAX will not do. It will never take the place of your handheld calculator. Neither is DATAFAX designed for keeping business inventories or for general accounting purposes. It will also never record your Great American Novel, your doctoral dissertation or even your twenty page term paper (though you'd undoubtedly want to use it to store notes or build a bibliography).

Let DATAFAX do what it does best - organize non-numerical information.

ORGANIZATION YOU CAN UNDERSTAND

First, let's take a look at the big picture - how this whole system hangs together.

Without going into the actual procedural steps covered in the tutorial section, let's imagine you're ready to take all your scraps of paper and start entering them into your computer with the help of DATAFAX.

What you're initially faced with is a blank screen. Consider it the same as a blank piece of paper - only better. Because DATAFAX will not only let you fill up your screen any way you want - it will also let you change or delete your information by just pressing a couple of keys. When you want to store what you've got on your screen, DATAFAX will do that too - and just as easily.

But let's say you've got more to type in than there's room for on just one screen. After all, the area on a screen is just as limited as the area on a piece of paper. DATAFAX will let you continue onto the following blank screen. At this point, though, it's necessary to define a few simple terms before we go on.

Once you've saved the information you've entered on at least one screen and decided how you're going to recall it later on (don't worry - we'll get to that), we'll be calling that collection of information a folder - that is, one or more concurrently entered and related screens.

And when you go back to retrieve the information you've stored, you'll be able to ask DATAFAX to search for folders according to certain criteria. We'll call this group of related folders a set.

In short, sets will be composed of folders. And folders will be composed of screens. If all this leaves you hopelessly confused, fear not. Because we're about to discuss the one element that will make all the pieces of this puzzle fall into place:

KEYWORDS

The heart of the matter. In DATAFAX a Keyword is a name for the information on the screens of any given folder. It really works like a literal key - to unlock specific doors to the information you've stored and need to retrieve (or like the label pasted to the top of any of your paper file folders).

A Keyword can be many things and work in many different ways. If one of your folders consists of notes from a business meeting, the Keyword might be the date of the meeting. Or the person with whom you had the meeting. Or the subject discussed during the meeting.

But whatever the Keyword actually is, there's one thing it always is - a personally meaningful reference to whatever is on that screen. The Keyword itself needn't be part of the text of a screen or folder. All that matters is that it be a word or words or set of numerals that are going to help you remember that information when you need to get it back later on - because the Keywords will become the criteria you will use whenever you need to retrieve any information.

Whatever Keyword or Keywords you choose to identify the

information in the folders you create with DATAFAX, DATAFAX will always keep a running list of them. Dates that you designate as Keywords will always come first in the list, in chronological order; verbal Keywords will always be listed alphabetically. And DATAFAX will do this automatically, adding Keywords to the Keyword list as you go along.

CROSS-REFERENCING

Now, let's go back to the screen-folder-set terminology we introduced before - and that you're going to be using when you actually start running DATAFAX.

In a manual filing system - with paper files and filing cabinets - you've undoubtedly come across a document or note or memo that's not easily tucked into one file or another. What if you had made a phone call concerning the SUMMER MARKETING plan to MR. SMITH on NOVEMBER 10th, in which you discussed a WIDGET being developed by one of your engineers, ED ELECTRIC. Do you file it under SUMMER MARKETING? Or WIDGET? Or SMITH? Or PHONE CALL NOTES? Or ELECTRIC, ED? Or 11/10?

How are you most likely to remember where it'll be when you need it later? And what if the information contained in the notes becomes essential to an entirely different purpose? Do you reclassify it? And then how do you ever find it when you need it again?

With a manual filing system, you've got yourself a sticky problem - especially when you multiply it by the thousands of notes, memos and other miscellania generated by any person or business every day. But with DATAFAX, you're always in charge of the situation. And Keywords are what give you control.

Looking at our example, you could take your phone conversation notes and, instead of identifying them under just one word or set of words, assign them as many Keywords as you want: Smith; 11/10; Electric, Ed; Summer Marketing and so forth.

DATAFAX will remember every Keyword you designated for that folder of notes - and instantly store it for future use.

"But now," you may be wondering, "what if I want to retrieve that one folder of notes later on, the Keyword I search under is Summer Marketing - and there are three or eight or a dozen different folders under that one Keyword?" Once again, if you were stuck doing things the old way, you might be in trouble.

But DATAFAX solves that problem too. And here's where all our terminology starts to make even more sense.

With DATAFAX, you don't have to limit the search through your information to just one category (i.e. Keyword) because you can ask DATAFAX to conduct a search using several Keywords (as long as the folders you're looking for contain all the Keywords under which you're searching). Those Keywords, in effect, become the criteria under which DATAFAX will conduct a search for information. And all the folders that fit into those criteria will become your set. Thus screens and folders are constant (until you alter them). It's the sets of information that will change - according to the criteria (Keywords) that you specify in your information search.

Getting back to our example, there may have been other notes pertaining to the SUMMER MARKETING plan. But you want the PHONE CALL NOTES from your conversation with MR. SMITH concerning ED ELECTRIC's WIDGET. If all the capitalized words in the preceding sentence have already been entered as Keywords, they can all be included in your search.

You can get as specific as you want with DATAFAX. The more Keywords you can specify to DATAFAX before it conducts an information search, the easier it will be to find exactly the set of information you want. And since DATAFAX always remembers a list of all the Keywords you've ever entered, you can always ask it to give you that list - printed out if you'd like - in case your memory needs jogging.

How many times have you needed to recall the substance of a phone conversation, only to find that either you took no notes or that the notes you took are a mess of chicken scratches or hopelessly lost in a mound of paper. With DATAFAX, any notes you wanted to jot down could be entered directly into your computer during the phone conversation, eliminating the need for handwriting them at all. No information is lost and a lot of time - not to mention hassle - is saved.

Now perhaps you have a better understanding of how DATAFAX works and what it can do. But for the sake of clarity, let's look at a few more concrete examples.

CLEANING UP A MESS - ANYWHERE

In your home, DATAFAX can serve as a convenient organizational tool. If you collect stamps, you could enter information into

DATAFAX, using as Keywords years of issue, countries of origin, face value, stamp color or shape, stamp dealers, titles of stamp collecting reference books or any other Keywords you might want to designate. Then if you wanted to search for the most recent listed price of a given stamp, you could just ask DATAFAX to search for that stamp under, say, the Keywords BLUE (color) and OBLONG (shape), and then cross-reference with 1934/LIST PRICES.

DATAFAX could also serve as an excellent annotated recipe file. Let's say you were having guests over for dinner tonight and your butcher had a terrific buy on lamb. And let's say you're planning an Italian meal. By searching your DATAFAX recipe folders under the Keywords ITALIAN and LAMB, DATAFAX could give you a list of the recipes that fit your needs. Or let's say you cooked the lamb recipe only to discover that it could have used a little less salt and a bit more sage. By having DATAFAX recall and display the recipe, you could change the quantities listed for ingredients or add notes at the end of the recipe folder or screen, much as you'd scribble a note in a cookbook.

By using the Keyword and cross-referencing search functions as outlined above, you could keep an up-to-date file of friends' and relatives' birthdays. Or you could develop family medical records and keep them current. Or keep and update personal bibliographies, identifying articles or books by title, topic, author or any other Keyword that's likely to help you recall the entry when you need to refer to it. DATAFAX could organize your daily information needs at home in a lot of ways you probably haven't even thought of yet.

And it's because of those Keywords: The power built into them lets you access all the information you want quickly, efficiently, painlessly.

TAKING CARE OF BUSINESS

DATAFAX fits in just fine at the office too, eliminating the need for excess paper clutter and handling.

Let's take a look at an ad agency - a good example, since the running of any sized ad agency amounts to the managing of myriad details - and usually ends up as a sort of organized chaos. From the boss on down, everyone in an agency must be kept abreast of what projects are going through the office, the status of each project and any action required by a particular person in the office. The person in charge of keeping everybody else on their

toes is called, appropriately enough, the Traffic person.

Let's say the Traffic person has a new job come into the agency - a brochure. It's for the Acme Sprocket Company and it's due on February 11th. With DATAFAX, the Traffic person can create a new folder for the job on the agency's computer. By giving that information the Keywords ACME (client), BROCHURES IN PRODUCTION (type/status of job) and FEBRUARY JOBS (projects due in February), she instantly has several different ways of accessing the information later on. And so does the Production Manager who has to order paper and printing for the job, and the bookKeeper, who has to keep track of the charges for the job. And any other person at the agency who's concerned with the ultimate disposition of the project.

DATAFAX is also ideal for keeping track of any information related to customers. Folders can be entered under a customer's name - with the customer's name as a Keyword. Then the product or service purchased, the date of a transaction, the customer's city, state or zip code, etc. can also be included as Keywords for any particular folder relating to the customer. In this way, you could keep track of what particular customers are buying, types of products in which they're interested, how often they're buying, and so forth. So if, say, you were offering a new product or line, DATAFAX could help you find out which of your customers might be most likely to buy. Once again, the key is accessing the information you need through Keywords - allowing you to do as specific an information search as you'd like.

DATAFAX is especially well suited to the needs of employment agencies or brokers - where various customers or clients have to be matched up with specific listings or other information. For example, an employment agency's client could be identified in DATAFAX by the Keywords SECRETARY, LEGAL and STENO. So if a job opening came up calling for those specific qualifications, DATAFAX could be asked to search its folders for information listed under only those Keyworded descriptions - thus saving time and effort in locating just the right candidates for the job.

Whatever line of work or study you're in, whatever your hobbies or interests or day-to-day needs, stop for a moment to imagine the possibilities. Once you do, we're sure you'll be anxious to get on to the tutorial and start organizing all the information you depend on - with DATAFAX.

CHAPTER ONE

Getting Started

Before you can start doing anything with DATAFAX, you have to have an APPLE computer. Not only that, you have to have the right kind of APPLE computer. And that means an APPLE][or APPLE][PLUS with at 64K of memory and at least two disk drives. Furthermore, card location is important when using DATAFAX, and if cards are not where DATAFAX expects them to be, the program will not work. At all. So, unless you are using the Apple Pascal system, you should probably read APPENDIX A on hardware requirements, APPENDIX B on setting up your APPLE, and APPENDIX C on slot dependencies. It won't take long, and it'll save a lot of grief later.

Since you have now set up your APPLE properly, we can start :

Booting DATAFAX

In order to run DATAFAX, you have to load it into your Apple, and in order to load a program from a diskette you have to run a program which loads programs and as you can see, we can quickly get into a vicious circle.

The operation of getting that first program - which loads programs - into a computer is knowns as BOOTING the computer. This does NOT mean that you attempt to score the winning point with a place kick. The term booting is derived from the concept of pulling oneself up by one's own bootstraps, after the legendary Baron von Munchhausen, who in one of his tall tales claimed to have done exactly that.

If you removed the little tab which covered the small notch in the side of the DATAFAX diskette - STOP. This notch permits writing on the diskette, and the reason it should be covered with a "write-protect tab" is to prevent accidental overwriting of information. If you removed the tab or if it somehow came off the diskette, get a new tab and cover the notch again. If you don't have any official write-protect tabs, any piece of sturdy tape will do. Your DATAFAX diskette should always have a write protect tab covering the notch.

In order to boot the Apple, place the DATAFAX diskette, with the label UP and facing away from the drive, into your disk drive one. (This is the disk drive which is connected to the top connector of the controller card in slot 6.)

When inserting diskettes into disk drives, be sure to close the

door gently, so that the disk drive hub can center the diskette. If you slam the door shut you may damage the center hole on the diskette so that it can no longer be used.

After inserting the diskette, apply power to your Apple. The message "APPLE][" should now appear at the top of your screen. If your Apple does not have an "AUTOSTART ROM", then your video display device will show an asterisk in the lower left hand corner. If this is the case, type the number 6, then press the control key and the "P" simultaneously, and then press the return key.

The light on the disk drive should now be lit, and the motor should start to turn. The display screen will clear, then it should briefly fill with "@" signs in reverse video, and then it should clear again leaving the cursor at the upper left. After a few seconds of grinding noises from both of your disk drives, you will be confronted by a copyright notice and a selection menu.

DATAFAX is now operational.

First Things First - Formatting and Backup

The first thing you should do with DATAFAX is make sure that you are protected against various things that happen to diskettes. In order to accomplish this you should back up your DATAFAX diskette. When you use a brand new diskette, fresh out of its box, it does not have any information on it. Most programs, including DATAFAX, cannot use a new diskette in this condition. So a special type of program called a formatter is used to write some initial information on a new diskette. Such a program is supplied with DATAFAX, and you should now select the option to F(ormat a blank diskette. You make a selection by typing the first letter of the thing you want to do. In this case, since you want to Format a diskette, you type the letter "F". Don't hit the return key - DATAFAX doesn't need it and will do the wrong thing if you type it. Whenever you are asked to respond with a single letter command or choice, DATAFAX will expect you to type ONLY that single letter or choice. If you happen to be using a mixed case device (such as an 80 column card with a shift-key mod), then you can type these commands in either upper or lower case - DATAFAX doesn't care. It will respond equally well to either.

After you have typed the "F", DATAFAX will remind you that when you are finished with formatting you must hit RESET to continue. It will then wait for you to type a "space". Just hit the space bar on your keyboard to continue.

The diskette will make its clacking noises and then the APPLE DISK FORMATTER program will introduce itself and will ask for the number of the disk to format.

Insert a blank diskette into your second drive, label side up and away from the drive. Make sure the write protect notch on the diskette is not covered with tape or a label.

Respond to the question on the screen by typing the number 5 followed by the return key. (Unlike those single letter commands, numbers must be entered with the return key following the number. This is because a program has no way of knowing whether ALL of the number has been entered. The RETURN key says, in effect, "that's all."

The FORMATTER program will now attempt to write the format information on the diskette, and it will take about 40 seconds to complete its task. If all goes well, the program will simply repeat its question about which disk to format. At this point the diskette you placed in your second drive has been formatted, and you should remove it from the drive.

While you're at it - format several diskettes so that you will have them available when you need them.

If the formatting process does not work as described, read the Appendix on formatting diskettes for further information.

After you have formatted as many disks as you want - but at least two - press the RESET key on your Apple. This will cause DATAFAX to reboot. (If you have an Apple without the "AUTOSTART ROM" you will have to type the number 6 and CTRL-P and return as described in the booting instructions above.)

With the supplied DATAFAX diskette in the first drive, and one of the newly formatted diskettes in the second drive, choose the B(ackup option from the selection menu. (You remember that to choose an option you simply type the first letter of that option, without a RETURN. So type a "B".)

DATAFAX's Backup module will now ask you FROM which unit you wish to back up and you should respond by typing the number 4 and pressing the return key. In response to the TO question you should type 5 and the return key.

DATAFAX will now ask you whether you are ready to proceed, and if you have followed the instructions for diskette placement you should reply by striking the Y key. DATAFAX will now create a copy of itself on the new diskette, and verify that the copy took place correctly. The entire process should take less than three minutes, at the end of which time DATAFAX will inform you that it has created a successful copy.

If the backup process does not function as described, read the Appendix on Backup procedures for further information.

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If the backup process does not function as described, read the Appendix on Backup procedures for further information.

Once you have created a backup copy of your DATAFAX diskette, label it appropriately with one of the labels that came with the diskettes you purchased, and put a write protect tab on it. Then place your original diskette in a safe place where it will be protected from extremes of temperature and humidity as well as grit and dust.

Place the copy you have made into your first drive. It is now your DATAFAX program diskette, and you should not have to go back to your original unless your working copy becomes unusable.

You are now ready to build your first DATAFAX database.

CHAPTER TWO

Setting up a DataBase

Choose the S(etup option to set up a new database. (Just an "S" - right?!)

DATAFAX will now request the unit number on which to set up the new data base. You should place a newly formatted diskette - you did make a second one, didn't you? - into the second drive, and respond with the number 5 and a RETURN. (If you really want to know about unit numbers, please read the appendix on disk drive numbers.)

DATAFAX now gives you the opportunity to define a size for the database we are about to set up. The number 274 is offered as a default value and you should just hit RETURN. (If you typed in a number at this point you may get some strange error messages - see the Appendices on error handling for an explanation.)

If you followed the instructions DATAFAX will now attempt to create a new data base for you. It will inform you of its progress by displaying a series of dots across the screen as blocks of information are initialized on the diskette.

Once the data base has been initialized, DATAFAX will automatically open the data base for you and transfer control to the information storage and retrieval module of the system. To inform you of this state of affairs, DATAFAX will display, at the top of the screen, the cryptic message:

"DataFax[NN] New Exm Scn Prt Del Keys"

That's it.

You're running DATAFAX. You initialized a data base, and DATAFAX awaits your information.

Now what?

Using DATAFAX - a beginner's walkthrough

Since there isn't any information out there on the diskette, the only reasonable thing you can do at this point is to enter some new information into DATAFAX. And, strangely enough, the way to accomplish this is to select the option "N" (for NEW) from the options you see displayed. (Remember - just the letter.)

Type the "N".

The command line at the top of the screen disappears. And a new line shows up at the bottom of the screen, declaring:

"[Editor: 1 of 1 WordWrap ON No Keys]"

This tells you that you have entered the world of the DATAFAX Editor. It's similar to a number of text editors available for microcomputers, and it's the way you're going to give DATAFAX the information you want it to store for you. There are a variety of EDIT FUNCTIONS available to you when using the DATAFAX editor, and we'll discuss them all later. But for now, notice that the CURSOR, that little blinking square (or line) which shows where things are going to go on the screen, is sitting in the upper left hand corner. DATAFAX will always position the cursor there whenever you open up a folder of information. And of course, by saying NEW, you opened up a brand new folder. (A folder, as we mentioned in the introduction, is a collection of related information which is associated with a set of Keywords. If you're not totally comfortable with that concept yet, don't worry. It gets easier.)

Since this is an experiment, just type in some great thought for posterity, something like

"THIS IS A TEST"

Having created a FOLDER, you should now attempt to save it.

So type CONTROL-C. (This is accomplished by pressing down the CONTROL Key and the "C" Key at the same time. The CONTROL Key works just like the SHIFT Key, in that it changes the meaning of the Key you press at the same time.)

CONTROL-C is the code which has been predefined in DATAFAX to save folders.

But instead of saving the folder DATAFAX beeps at you and tells you that it is unable to save the folder - no Keys defined. As you will see later this makes a lot of sense, since if a folder didn't have Keys you couldn't find it very easily.

However, for now you're looking at the SPACE message, and you should in fact press the SPACE bar to continue. DATAFAX will immediately return to edit mode, with the CURSOR positioned right where you left it.

Now type CONTROL-K. (Remember how CONTROL Keys are typed.)

Your screen SHOULD now display the line

"No Keywords defined."

at the top and the line

"Keys: Add, Remove, Up, Down:"

at the bottom. (If this is not the case, then you are EITHER using an 80 column board or an external terminal, and should read the section on redefining terminal keys before continuing. In fact, it would probably be a good idea to remove the 80 column board or external terminal while becoming acquainted with DATAFAX.)

What you are looking at is the KEYS menu, which allows you, as the options imply, to ADD and REMOVE Keys. There being nothing to remove, your choice is to ADD. (Up and Down are explained in the discussion of the KEYS menu later in this document.)

Select ADD. (Do so by typing "A".)

The bottom of the screen now has a line of 28 underscores (you don't need to count them), above which is the message "Enter Keyword to add:".

Well, one of the known pieces of information about the folder you're working with is that it is a test. So why not make one of the Keys for it the word TEST.

Go ahead and type "TEST". This requires the pressing of the RETURN Key after the word, because again, DATAFAX has no way of knowing when you're done with the word.

Observe what happened.

The top of the screen now says that the folder has one Keyword.

And the Keyword itself is shown below that - TEST.

At the bottom of the screen you're being asked for more Keywords.

Hit the ESC key on your keyboard.

The KEYS options reappear - just like that.

Hit ESC again.

A general rule as you travel through DATAFAX is that the ESC Key always returns you to a level of the system closer to the point where you came in. When you were adding Keywords an ESC returned you to the KEYS options. From there an ESC returned you to the screen editor, which is where you came from to get to the KEYS. There has been a change since you were here last - the line at

the bottom of the screen now says:

"[Editor: 1 of 1 WordWrap ON 1 Key]"

reflecting the fact that there is now a Key associated with the folder.

Now that you're back with the Editor - notice that the CURSOR still hasn't moved - hit ESC one more time.

DATAFAX asks whether you really want to exit without updating.

It turns out that the ESC Key also can be used to cancel whatever changes or insertions you may have made to a folder. But since you might hit it accidentally and wipe out all your typing, DATAFAX gives you a second chance before actually erasing the data.

Type "N", since you don't really want to exit just yet. (Another ESC would have the same effect - remember that ESC gets you back to whence you came.)

Well - back in the editor again.

This time type CONTROL-C. You recall that when you did this earlier, before our little journey into the KEYS world, DATAFAX wouldn't save the folder for you.

But this time DATAFAX says

"Writing screen to disk..."

quickly followed by

"Writing Keys to disk..."

and reverts to the "top level" of commands.

Congratulations.

You have just entered your first folder of information into DATAFAX, and learned a fair bit about some side issues as well.

But what's the point of entering information unless you can get it back out? So let's see whether we can find it again.

Since we are at the top level one of the selections available is EXM, which is short for Examine.

Type an "E" - for examine, of course.

DATAFAX will now ask you for Keys to search by, and you can type

"TEST", followed by RETURN. Another line of underscore characters will appear, as DATAFAX requests more Keys. Simply type RETURN, indicating that all Keywords have been entered.

Your data disK will proceed to clicK and whirr for a second, and your screen will show, once again,

"THIS IS A TEST"

but at the bottom of the screen a new line has appeared:

"[1 OF 1] Edit Del Prt Copy Next"

Remember when you created a "NEW" screen, a long time ago?

At that time, the selection of NEW caused DATAFAX to "open" a folder, and to activate the screen editor.

Now that you're examining folders, DATAFAX is displaying the first screen of information for a folder and offering you a choice of actions to perform. The folder has NOT been "opened" yet, and you can not use the editor YET. The numbers which are displayed at the bottom left (1 of 1) indicate that this is the folder number 1 out of 1 folder selected. If more folders had existed with the Keyword TEST, then the numbers would show that this was folder number 1 out of however many were found.

At this point you can edit the folder again, and the way you do that is, strangely enough, by typing "E" (for Edit). Do so.

The line at the bottom changed again - to the same value it had when we were in the editor before. As you can see, whenever you are "in" the editor, the bottom line of the screen reflects that fact.

You can now modify the screen by typing over the information you entered before or by adding information.

To show you a different way of creating Keywords for a folder, type the following on a new line (you can get to a new line by hitting the RETURN Key)

"This folder has been modified"

With the CURSOR sitting on the blanK space immediately to the right of the last "d" in modified, type a CONTROL-X. (Remember that control Keys are used to modify the value of a Keyboard Key, so press both CONTROL and X at the same time.)

The line at the bottom of the screen just changed!!

It now says you have TWO Keys.

Type CONTROL-K to look at the keys.

And as you can see, the key "MODIFIED" has been added to the list of keys. Since you may not want to add any more keys at this time, hit ESC to get back to the editor, and type CONTROL-C to save the modified screen.

That returns you to the "bottom" command line of EXAMINE, and hitting ESC w will now get you back to the top level of DATAFAX.

And there you have it. Although there are many additional options and functions available, you can now use DATAFAX effectively and become more familiar with its features as you use it.

So far we have described DATAFAX operation in a very practical sense - you hit this key, and some action takes place. In order to understand the operation at a somewhat deeper level, an understanding of both data and program organization is helpful.

CHAPTER THREE

Data Organization with DATAFAX

The data that you enter into DATAFAX is contained in a file called the Data File. This file usually fills an entire diskette, and this diskette is called the data diskette.

The data file is organized as a series of folders. Each folder consists of screens and Keywords. Keywords are words, dates, abbreviations, categories, whatever, that are used to "look up" the folder in the future. For example, if you typed in a folder about your mother you might use the Keyword MOM. A screen is just what you'd think it is - the amount of data that can be typed into the Apple's 23 by 40 screen display. (The reason it's only 23 is that we steal the bottom line to contain a status or command display.)

A folder must have at least one screen (although the screen can be blank) and at least one Keyword. The number of screens you can have in a folder is, in theory, only limited by the mass storage available. In practice, though, we'd suggest that you not enter the text of Gibbons' Rise and Fall even if you do have a forty megabyte disk. It wouldn't be the most effective way of using the system. As mentioned before, the main reason for requiring a Keyword is to enable you to find the folder again later. For this reason we strongly urge you to make the Keys meaningful - not just something to keep DATAFAX happy. Having two hundred folders each with a solitary Key "DUMMY" is not going to help you isolate one when you need it.

Keywords must contain at least one character. They can be no longer than twenty-eight characters. This may seem somewhat arbitrary, but in order to make DATAFAX work at the speed at which it does, some limit had to be assigned.

You should be aware that the number and length of Keywords you use directly impacts the amount of data that can be stored in a data file. Longer Keywords require more storage than shorter Keywords and reduce the total number of Keywords (and folders) that can be stored in your data file. Shorter Keywords make sense from a practical point of view as well since they are easier to type. You might consider using abbreviations for Keywords (such as "IRS" instead of "Internal Revenue Service") to make it easier on yourself.

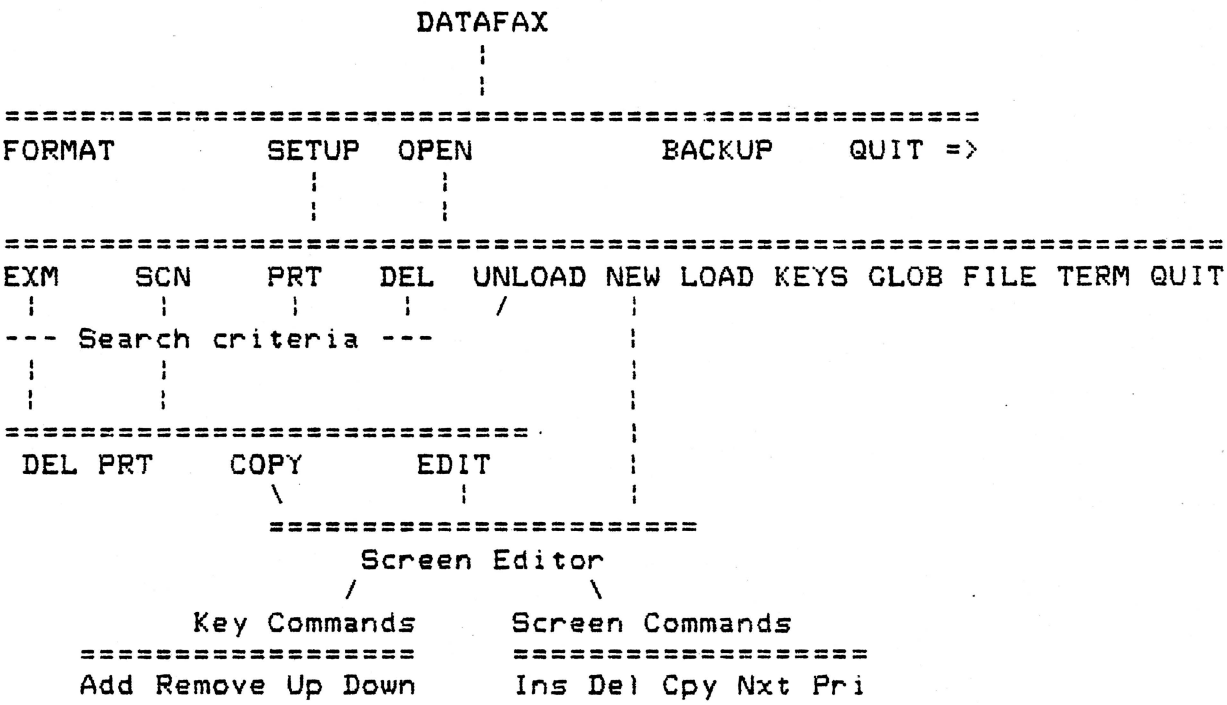
One more note about Keywords: All Keywords are converted to uppercase letters. Therefore, typing "IRS" or "irs" results in

the same keyword, namely "IRS."

DATAFAX Command Organization

The structure of DATAFAX can be thought of as being similar to that of a tree, branching out from a common trunk. That main trunk, which may be referred to elsewhere in this document as the "outer shell" of DATAFAX, determines the broad actions you will take. This outer shell offers you a very limited menu of activity. (When such tree structures are used to describe menu structures, it is usually helpful to think of the tree as being upside down, with the spreading branches on the bottom.)

Although the following diagram is not complete, it illustrates the main interactions within DATAFAX and may be helpful in the subsequent discussion.



You have explored three of those menu options so far.

First you Formatted a few diskettes, then you Backed up your master disk. After that you Set up a data base.

In addition to those options, the outer shell also allows you to:

Open an existing DataBase, which must have been

previously created with Setup and

Quit DATAFAX

Both the Setup and the Open option transfer control to the DATAFAX command mode - in which the command line

"DATAFAX[NN] New Exam Scn Prt Del Keys:

is displayed.

While a database is open (and remember that setting up a data base causes that data base to be opened), DATAFAX operates in three modes; command mode, search mode, and edit mode.

Command mode is denoted by prompt lines which appear at the top or bottom of the screen. The prompt line that starts with "DATAFAX" is the top level prompt line. It is from this level that you select the commands of DATAFAX that are described in section six.

Each prompt line represents a decision point in which you may choose one of the commands listed in the prompt line. The command you select may then lead to another prompt line. When this happens you have descended a level in the DATAFAX command structure.

You may always return to the previous level by hitting the ESC key in response to a prompt or question. In fact, the ESC can be used to cancel any command you select. It is important to know that you return to the top level via the same path you used to get to a lower level in the command structure.

DATAFAX enters the search mode when one of the top level commands requires that a set of folders be searched for with search keys. Once the search is completed, the command you have selected continues. See the following section for more information about searching.

The edit mode is entered by selecting the top level New command, or editing (or copying) a folder from the Examine or Scan commands. The editor differs from the command mode in that there is generally no prompt line on the screen, and DATAFAX is not waiting for a command. Instead, DATAFAX accepts any displayable character as data to be entered into a folder, and accepts certain keystrokes as commands to make the editor perform certain functions. Please see Chapter four for more information about the editor and its operation.

Folder Searching

Many of the DATAFAX commands let you specify which folders to operate on by searching the data file for the appropriate folders. The search is always the first thing to be done in a command requiring a search. DATAFAX begins a searching by displaying the message "Enter Keys to search" at the top of the screen, followed by a line of underscores. Keywords are entered by typing one Key per line and hitting the RETURN key an extra time when you are done.

As each Keyword is typed, DATAFAX checks to insure that it is in the data file. Once the entire list of Keywords has been entered DATAFAX searches the data file to find folders that contain ALL of the Keywords you typed in the search. Note that a folder can contain more Keywords than those specified in the search. The important point to remember is that the folder must have ALL of the search Keys in order to be found.

DATAFAX allows you to enter partial search Keys by using the asterisk (*) character. For example, typing "AP*" might match the Keyword APPLE. Note that a partial Key will match ONLY ONE Key in the data file. Therefore, if your data file contains the Keys APPLE and APE, typing "AP*" will ONLY match APE. (The reason that APE rather than APPLE is found is, of course, that the Keywords are sorted in alphabetical order.)

It is also possible to match ALL of the folders in the data file by simply typing an asterisk by itself as the first search Key. This can be useful when you want to browse through the entire data file, and is re referred to as an "asterisk search."

CHAPTER FOUR

The DATAFAX Screen Editor

The DATAFAX screen editor is used to enter data to be saved in folders. The editor allows you to change data in a single folder. You may move from screen to screen within a folder, but you cannot edit a different folder unless you leave the editor and return with another folder.

When you enter the editor it displays the screen to be edited, and the editor status line at the bottom of the screen. The status line indicates which screen you are editing, whether wordwrap is in effect, and the number of Keys defined for the folder you are working on.

Data is entered into the screen simply by typing in the desired text. The text is entered at the location of the cursor. DATAFAX provides a number of cursor movement commands that allow you to MOVE the cursor OVER text to the place where you wish to enter new text. Note that you can TYPE OVER text that already appears on the screen by moving the cursor to the text and typing.

The editor also provides some editing commands that help you make changes in the text you've already entered. In addition, there are commands for manipulating Keys and moving from screen to screen within a folder. These commands are called Key commands and screen commands, respectively.

Since any character typed is assumed to be a character of data to be entered into the screen, there needs to be some "special" characters that DATAFAX knows to be commands rather than displayable characters. These special characters, or edit commands, are typed by hitting one of the letters on the keyboard while holding down the CTRL (pronounced "control") key. The CTRL key can be thought of as another SHIFT key on the keyboard, and it functions in the same way. Thus, hitting CTRL and A (written CTRL-A) produces a different character than hitting A or SHIFT-A.

It should be noted that the key used to invoke any editing command can be changed. This is done with the top level TERM command, and allows you to set up a custom set of editing Keys if you wish. Please refer to the section on the top level TERM command for more information.

The following tables list the edit commands by function. The

keys to invoke each command are also listed. A list of editor commands can also be printed by using the Term Print command.

4.1 Cursor movement commands

The following commands are used to move the cursor on the screen:

FUNCTION	KEY	ACTION TAKEN
move left	left arrow	Moves the cursor left one character.
move right	right arrow	Moves the cursor right one character.
Move up	CTRL-P	Moves the cursor up one line.
Move down	CTRL-L	Moves the cursor down one line.
RETURN	return	Moves the cursor to the beginning of the next line.
Home	CTRL-Q	Moves the cursor to the upper-left corner of the screen.
Tab	CTRL-T	Tabs the cursor to the next tab stop. Tab stops are set at every fifth column in a line.
Word tab	CTRL-W	Tabs the cursor to the beginning of the next word.

4.2 Editing Commands

The following commands aid in the editing of data on the screen. These commands all take place at the location of the cursor:

FUNCTION	KEY	ACTION TAKEN
Insert char	CTRL-I	Inserts a space in a line. The character at the end of the line is lost.
Insert line	CTRL-O	Inserts a blank line into the screen. The blank line is inserted at the line of the cursor, causing the lines below it to be moved down one line. If the last line on the screen contains characters, DATAFAX asks if you really want it destroyed.
Delete char	CTRL-D	Deletes a character in a line. A space is inserted at the end of the line.
Delete line	CTRL-F	Deletes the line the cursor is on. The lines below it move up one line on the screen, and a blank line is inserted at the bottom of the screen.
Erase line	CTRL-E	Erases characters from the cursor to the end of the line.
Erase screen	CTRL-R	Erases characters from the cursor to the end of the screen.

4.3 Commands to Leave the Editor

There are two commands that leave the editor. These are:

FUNCTION	KEY	ACTION TAKEN
Exit editor	ESC	Hitting the ESC key leaves the editor without saving the screen you are editing or the keys.
Save and exit	CTRL-C	Saves the screen you are working on, and the keys, to disk and exits from the editor.

4.4 Miscellaneous Editor Commands

The following are the miscellaneous editor commands:

FUNCTION	KEY	ACTION TAKEN
Verify screen	CTRL-V	Verify screen. Simply redisplays the screen you are editing.
Make Key	CTRL-X	Makes a word in the screen a keyword. This is done by moving the cursor onto a word and hitting CTL-X. In addition, the cursor can be one character to the right of a word when you hit CTL-X.

4.5 Screen Commands

Screen commands are two-keystroke commands that require you to hit CTL-S first. When you hit CTL-S the status line is replaced with a prompt line listing the screen commands. These are:

Insert	Inserts a blank screen AFTER the one being edited. The current screen is optionally saved, and the blank is displayed for editing purposes.
Delete	The screen being edited is deleted from the folder. The screen before the one deleted is displayed unless the deleted screen was the first screen, in which case the next screen is displayed (if any).
Copy	Like insert, but instead of inserting a blank screen this command inserts a duplicate of the screen being edited.
Next	Causes the editor to display the next screen in the folder.
Prior	Causes the editor to display the prior screen in the folder.

Note that it is possible to make any of these commands a single-

keystroke command by redefining your editor keys. Please see section 5.11.

4.6 Key Commands

Key commands are two-keystroke commands that require you to hit CTL-K first. When you hit CTL-K the display of your screen is replaced with a display of the keys for the folder and a prompt line listing the key commands. The key commands are:

Add	Allows you to enter new keywords for the folder. Hit an extra return when you are done.
Remove	Allows you to remove a keyword from the folder.
Up	Causes the list of keys to be scrolled up. This is needed only when you have more keys than can be listed on the screen.
Down	Causes the list of keys to be scrolled down. This is needed only when you have more keys than can be listed on the screen.

To return to the screen you were editing you must hit ESC or RETURN.

Note that it is possible to make any of these commands a single-keystroke command by redefining your editor keys. Please see section 5.11.

CHAPTER FIVE - DATAFAX Top Level Commands

This section will describe in detail the commands of DATAFAX' top level.

5.1 New

The New command is used for adding a new folder in the data file. The New command immediately enters the editor.

5.2 Examine

The Examine command is used to "examine" folders in the data file. Examine lets you browse through a set of folders, editing, deleting, copying, or printing each folder as you go.

Examine will first ask you to enter the Keys to be searched. After finding the folders matching the search Keys, Examine will display the first screen of the first folder found, and a prompt line at the bottom of the screen. The numbers in brackets in the prompt line indicate which folder you are viewing out of the total folders being examined (e.g. [3 of 10] refers to the third folder out of ten being examined).

The prompt line lists the operations that can be carried out on the folder being viewed. These operations are:

Edit	Edits the folder being viewed.
Delete	Deletes the folder being viewed from the file.
Print	Prints the folder being viewed.
Copy	Copies the folder (minus Keys) and edits the COPIED folder.
Next	Causes the next folder to be viewed.

5.3 Scan

The Scan command is similar to Examine. It operates on a set of folders found with a search, and performs the same operations on the folders as Examine. The difference is that Scan displays the first non-blank line of each folder on the screen, thereby letting you view up to twenty-one folders at a time instead of only one folder.

Underneath the folders scanned is a prompt line of operations that can be performed on any of the scanned folders. Each

operation requires that you select which folder you wish to use in the operation. The operations are:

Edit	Edits a folder of your choice.
Delete	Deletes a folder of your choice from the file.
Print	Prints a folder of your choice.
Copy	Copies a folder (minus Keys) and edits the COPIED folder.
More	Used when a scan results in more folders than can be displayed at one time. This command displays another screenful of folders.

5.4 Print

The Print command is used to print folders. The folders can be printed to the printer or to a disk file. The folders to be printed are selected by doing a search, and you can review each folder before printing it if you wish.

The Print command allows you to print the Keys for each folder if you wish. However, if you decide not to print the Keys, you can set the number of lines to be printed for each folder. Leaving this value at zero will print all of the lines of each folder, while selecting a non- zero value will set the number of lines to print. This means that it is possible to print mailing labels, or other forms of specialized printing, by making the number of lines to print conform to the size of the mailing label, and putting the name and address information at the start of each folder.

5.5 Delete

The Delete command is used to delete folders from the data file. The folders to be deleted are selected by doing a search. In addition, you may review each folder and decide to delete the selected folders indivually.

5.6 Keys

The Keys command displays the Keys in your data file. The Keys may be displayed on the console, printed on the printer, or written to a disk file. Writing the Keys to a disk file is only useful to Apple Pascal users.

The Keys command allows you to select the range of Keys to be displayed by entering a low value and a high value. Hitting RETURN for the low value will start the display with the first Key in the data file. Hitting return for the high value will display to the last Key in the data file. Entering values for

the low and high will display any Key that falls between the low and high value. For example, a low value of "D" and a high value of "E" will display all of the Keys that start with the letter D.

5.7 AutoKeys

The AutoKeys command is used to define and maintain a set of Keys that is automatically assigned to each new folder you enter into the data file. This feature saves time since Keys to be entered into several new folders need only be typed once.

These automatically assigned Keys are called "auto Keys." Once you invoke the AutoKeys command, DATAFAX displays a prompt line at the top of the screen which lists the operations that may be performed on the auto Keys. Any auto Keys already defined are also displayed on the screen.

The AutoKey operations are:

Clear	All auto Keys are removed from the system so that no Keys are automatically assigned to new folders.
Add	Allows you to create a new auto Key.
Remove	Allows you to remove a Key from the set of auto Keys.
Up	This is used when you have defined more auto Keys than can be displayed on the screen at one time. This operation scrolls the list of Keys up.
Down	This is also used when you have defined more auto Keys than can be displayed on the screen. This operation scrolls the Keys down.

Note that auto Keys are assigned to any folder created with the New command and any copied folder. (Folders are copied with the Copy operation of Examine and Scan.) Also note that auto Keys remain in effect until you return to the DATAFAX outer shell, or until you remove an auto Key or clear all of the auto Keys.

Also note that changing the auto Keys does not in any way affect folders that have already been saved.

5.8 File

The File command displays statistics about your data file. Some of the information displayed is not relevant to most users. The non-relevant information is displayed below the line that displays the DATAFAX version with which your file was created.

5.9 Load

The load command is used to load a text file into a DATAFAX data

file. The text file to be loaded is usually one created with the DATAFAX Unload command.

The Load command can be used in the following ways:

1. To "batch" load a number of folders at once. This is done by typing the data into a text file with the Apple Pascal ecitor. Users that do not have Apple Pascal cannot use the Load command for this purpose.

2. To merge data from another data base into the one you're working with now. This can include data from someone else's data file.

3. To recreate a data file that previously had errors in it.

4. To recreate a data file under a new version of DATAFAX that is no longer compatible with old data files.

5. To load data from another program into DATAFAX. This will probably require the use of the Apple Pascal editor, so users that do not have Apple Pascal will most likely be unable to use the Load command for this purpose.

When you execute the Unload command the first thing it will ask for is the name of the text file to be created. The name of the file can be up to ten characters in length, optionally preceded by a disk drive number. An example text file name is:

#4:TEXTFILE

In the example above, the disk drive number is 4, and the file name is TEXTFILE. The # must precede the disk drive number, and the : must seperate the disk drive number from the file name. There can be no space characters within the file name. Non-Apple Pascal users should make sure they understand the disk drive numbering system described in Appendix D.

After entering the name of the text file to be loaded, DATAFAX will ask if you want the text file echoed as it is loaded. If you choose "yes" then DATAFAX displays each line of the text file as it is read from the disk.

Most users of DATAFAX will only use the Load command with text files that have been created with the Unload command, and in that case it is not necessary that the user know the internal format of a text file. However, for the more enterprising users (and those users that have Apple Pascal) we will describe the format of a DATAFAX text file:

1. The text file must be a Apple Pascal editor-compatible text file.

software.

4. It is used when upgrading to a new version of DATAFAX that is no longer compatible with old data files.

Many of these uses are described more fully in section seven of this manual.

The text file created by DATAFAX should be written onto a diskette other than the data disk or program disk. The easiest way of doing this is to format a new disk, and then using the formatted disk to write the text file onto. The format of a text file created with the Unload command is described in section 5.9 of this manual.

When you execute the Unload command the first thing it will ask for is the name of the text file to be created. The name of the file can be up to ten characters in length, optionally preceded by a disk drive number. An example text file name is:

#4:TEXTFILE

In the example above, the disk drive number is 4, and the file name is TEXTFILE. The # must precede the disk drive number, and the : must seperate the disk drive number from the file name. There can be no space characters within the file name. Non-Apple Pascal users should make sure they understand the disk drive numbering system described in section one, and should also read section eight regarding their particular computer configuration. Non-Pascal users should also make sure that they write the text file name on the label affixed to the diskette - if you forget the file name, the is no way of using the file again.

After you have entered the name of the text file, DATAFAX gives you an opportunity to redefine the delimiter character. DATAFAX has defined the delmiter character as the backslash (\), and if you don't want to change it, simply hit return. Otherwise, enter the new delimiter character.

Next, DATAFAX will ask if you wish to unload all folders or select them by doing searches. If you choose All, then DATAFAX will search the entire data file unloading every folder. With a full data file this can be quite a time consuming process, so be prepared to let it run for an hour or two.

If you choose to Select folders, then DATAFAX will enter the standard search mode, and you determine the folders to be unloaded by doing repeated searches. After one search and unload is completed, DATAFAX allows you to perform another search so that more folders may be unloaded. Note that DATAFAX keeps track of which folders have been unloaded and will not unload the same folder more than once into a text file.

5.11 Term

The Term (for "terminal") command makes it possible to change the keys used to invoke the editing commands. Thus, you can customize the edit keys to any particular configuration you like. This command is somewhat more technical than the others and, therefore, should not be used by an inexperienced user.

When the Term command is invoked, it displays a prompt line at the top of the screen, as well as the currently defined edit characters. The display is somewhat cryptic due to space limitations on the Apple screen. Each editing function is displayed as a function number, the function name, and the key used to invoke the function. Control characters are displayed with an up-arrow character (^) preceding the letter (e.g. control-A is displayed ^A).

The Term display also indicates whether you are running a 40-column or 80-column Apple. Users with 80-column Apples should set up there DATAFAX data files to indicate that they have an 80-column Apple. This is done with one of the Term operations that will be discussed shortly. Setting DATAFAX to 80 columns does not increase the length of lines that can be typed into folders. Rather, it causes the DATAFAX editor to display the keys for a folder in the right half of the screen, and makes sure certain prompt lines are displayed in the right place.

DATAFAX supports single-keystroke and two-keystroke edit commands. A single-keystroke command is one such as a control character. All of the DATAFAX defined edit keys are single-keystroke commands. Two-keystroke commands are commands that require a "prefix" character followed by another character. The prefix character is hit BEFORE the second character - not at the same time as the CTRL key. The prefix character usually used by "computer people" is the ESC (pronounced "escape") key. Single-keystroke and two-keystroke commands can be mixed - that is, some commands can be single-keystroke while others are two-keystroke commands. However, all of the two-keystroke commands must use the same prefix character.

The Term operations, listed at the top of the screen, are as follows:

Set	Sets DATAFAX to 40-column or 80-column mode.
Default	Sets the edit keys back to the default set. This is the set that is defined for any new data file.
Redefine	Allows you to redefine the entire set of edit keys, including the prefix key.
Change key	Allows you to change individual edit keys.
Print	Prints the edit keys to the printer, so that you can

refer to it as a reference card.

Redefine and Change Key require more explaination. We'll cover Change first.

To change an edit key, DATAFAX will ask which edit function you want to change. You must respond with the number of the function you wish to change. For example, responding with 4 would indicate that you wish to change the Move Down function. After you have indicated which function you wish to change, DATAFAX will prompt you to type in the actual key (or keys) to be used to invoke the command. For example, if you wish to change the Move Down function to a CTRL-D, you would simply type CTRL-D. After you have typed the keys to be used for the function, the display is changed to reflect it and DATAFAX is ready to accept another Term operation. Since it is possible to use the ESC key as a prefix key, hitting the return key will result in no change.

Redefine is similar to Change except that it prompts you for the edit keys for each edit function, one after another. Before asking for the edit keys for each function, DATAFAX will ask if there is a prefix character. If there is, it will ask you to type it.

5.12 Version

The Version command is not displayed in the DATAFAX top level prompt line. It is not to enhance or improve the performance of DATAFAX. Its sole purpose is to display the version numbers of the DATAFAX subprograms and it exists for the use of Link Systems in determining the upgrade status of a particular version of DATAFAX should it be necessary to supply changes at a future date.

5.13 Quit

The Quit command is used to leave the DATAFAX top level and return to the outer shell. You must do a Quit before changing data files, otherwise you may damage a data file.

APPENDIX A - Hardware Requirements

DATAFAX requires the following hardware to run:

- Apple II or Apple II Plus with 64K of RAM

- A video display

- 2 Apple compatible disk drives with 16 sector controller card

In addition, the following optional equipment may be used with DATAFAX:

- 80 column card (some cards require special installation for use with the Apple Pascal system - see manufacturers documentation)

- Additional Apple compatible disk drive(s)

- Printer attached to interface card which works with Apple Pascal system, such as CCS 7710, SSM AIO or ASIO, or a parallel card.

- external terminal - this requires that you have an Apple Pascal system configured for your outboard terminal, and is only recommended if you are in fact using Apple Pascal.

- Non-Apple supplied disk drives, such as the hard disk systems available from Corvus Systems. Again, such non-standard devices require that your system be configured for Apple Pascal, and the manufacturer's manuals should be followed for installation and setup of Pascal volumes.

APPENDIX B - Setting up your Apple

In order to run DATAFAX on your Apple, there are certain hardware considerations you must be aware of. If you are already using the Apple Pascal system, then you will have done the necessary setup, but if you are a DOS 3.3 user or a newcomer to the Apple user community, then this discussion is for you. (Pascal users should read the appendix entitled "Notes for the Pascal User.")

Remember that before opening your Apple you should always unplug the power cord. If you mess about inside your Apple with the power on, you stand a very good chance of causing some quite expensive damage.

In addition to your 48K Apple II or Apple II Plus and a video display device of some kind, DATAFAX requires four additional pieces of hardware as an absolute minimum for operation.

You MUST have a 16K (or more) RAM card which is installed in slot 0 of your Apple. The installation of this card is detailed in the manual that comes with it. With some cards, including the Apple Language Card, you have to remove a memory chip from the main Apple printed circuit board (the "mother" board), insert it on the card, and plug a cable from the card into the mother board. Other cards just plug into slot 0 without any further ado. Be sure to follow the installation instructions carefully, or have your dealer install the card for you.

You must also have two Apple compatible disk drives. But in order to use a disk drive you need a disk drive controller as well. After carefully following the instructions that came with the drives and controller, and plugging the cables from the drives into the controller card, install the disk controller card in slot 6 of your Apple. This is NOT optional - the disk controller MUST be in slot 6 or DATAFAX WILL NOT RUN.

The disk controller must also be set up for sixteen sector operation. That means you have to able to run DOS 3.3. If your disks are set up for thirteen sector operation, and you are running an earlier version of DOS, you will have to upgrade your disk controller in order to run DATAFAX.

Make sure that you do not have any cards in slot three of your Apple, since DATAFAX will think the card is a terminal. This will cause unpredictable results. (For exceptions to this rule, see the Appendices on hardware requirements and slot

dependencies.)

After making sure that your Apple is properly set up, or configured, put the cover back on, plug in the power cord and the video display and you're ready to run DATAFAX.

APPENDIX C - Slot Dependencies

Since DATAFAX uses the Apple Pascal system, and because the Apple Pascal system is very particular about slot locations of interface cards, the following rules MUST be observed. (These rules also apply when operating under the CP/M operating system.)

- a 16K RAM card must be in slot 0

- if a printer is used, its interface card must be in slot 1

- if telecommunications is used, the interface or modem must be in slot 2

- if an 80-column card is used, it must be in slot 3

- the disk controller for the drive from which you plan to boot the system must be in slot 6

- a second disk controller (if any) should be in slot 4

Appendix D - Disk Drive Numbers

Since we have to use the Apple Pascal disk formatting program, we have conformed to the Apple Pascal method of numbering disk drives. Non-Pascal users will not be familiar with this system, so we describe it here.

Apple Pascal (and therefore DATAFAX) numbers the first pair of disk drives four and five (don't ask why). The second pair of disk drives is number nine and ten. (If you should have a third pair, they would be numbered 11 and 12.)

The following table converts Apple DOS drive numbers to Pascal "unit" numbers:

DOS	PASCAL
Slot 6 Drive 1	Unit 4
Slot 6 Drive 2	Unit 5
Slot 4 Drive 1	Unit 9
Slot 4 Drive 2	Unit 10
Slot 5 Drive 1	Unit 11
Slot 5 Drive 2	Unit 12

APPENDIX E - Backing Up Diskettes

An important and often overlooked requirement in data processing is the maintenance of copies of data and programs. You can be assured that you will destroy the contents of a diskette at least once in your data processing lifetime. To minimize the trauma when this does happen DATAFAX offers a backup option for copying the contents of one diskette to another diskette.

In addition to the original, you should maintain at least two copies of the program disk.

You should always maintain at least one copy of all of your data disks.

The reason for doing this is to prevent the loss of ALL the data you have typed in. If your dog chews up your data disk and you have no back-up copy, that data is lost forever. Spilling coffee is also not good for data disks. Even if you are extrememly careful in handling your diskettes, you still cannot prevent disks from wearing out and becoming unusable. Therefore, make sure you back-up your data.

How often should you back-up? If you use a data disk daily, you should probably copy it daily. For other disks, use your own judgement. Consider the time it takes to copy a disk versus the time it would take to reconstruct lost data.

The Procedure for Backing Up Diskettes

As stated above, DATAFAX offers a back-up option to copy the contents of one diskette to another. In order to back-up a diskette, you must run DATAFAX and the DATAFAX sign-on message must be displayed. (If you're not sure about this, simply boot the DATAFAX disk - when DATAFAX boots it displays the sign- on message.) You will notice that one of the options is

B)ack-up a diskette

Select this option by hitting "B." DATAFAX will display the message

DATAFAX Disk Back-up Module

At this point two-disk users may take the program disk out of its disk drive and use the drive as part of the back-up process.

DATAFAX then asks for the "FROM Unit Number." This is the disk unit number of the diskette to be copied - that is, the disk you are duplicating. The unit number must be one of the following: 4, 5, 9, 10, 11, or 12. (See Appendix D for more information.)

After you have entered the FROM unit number, DATAFAX asks for the "TO Unit Number." This refers to the disk drive that contains the blank diskette to be written. Once again, the unit number must be 4, 5, 9, 10, 11, or 12. It also must not be the same unit number as the FROM unit number. Note that the diskette to be written on must be a formatted, unused diskette. If the diskette has been used for other purposes, then it must be re-formatted with the DATAFAX disk formatter before being used in the back-up process.

Note: Hitting the escape key in response to either of the above questions causes DATAFAX to return to the sign-on display.

After you have specified the disk unit numbers, DATAFAX asks

```
Ready to proceed?
```

You should now ensure that you have inserted the disk to be copied and the blank disk in the correct drives and that you are indeed ready to proceed with the back-up process. If you are, hit "Y." If you are not hit "N" or ESC.

If you enter "Y" then DATAFAX will attempt to read the blank disk to make sure it is blank. If it is not (or if there is no disk in the drive), DATAFAX responds with the message

```
Diskette in unit xx is not blank
Reformat it or use another diskette
```

and the back-up process is terminated.

Assuming DATAFAX has found a blank disk to write on, DATAFAX displays the message

```
Copy in progress
Reading      0
Writing
```

and the back-up process has begun. As the back-up proceeds, the numbers after the "Reading" and "Writing" messages will change. These numbers indicate progress in the back-up and end with 272. It will take about a minute to get to 272.

Once DATAFAX has reached 272 successfully, it enters the verification phase. This is noted on the screen with the display

```
Verification in progress
```

```
Origin      0
Copy
```

and once again DATAFAX starts changing the numbers. The verification phase is used to verify that the copy was indeed successful. This process will take about 30 seconds, and the numbers will go up to 276.

If the verification is successful, then the message

```
Verification successful - no errors
```

is displayed and you have duplicated your diskette. If you do not reach this message then an error must have occured. Errors are indicated by an error message followed by an error code. The meaning of the error code can be found in Appendix I.

Appendix F - Formatting diskettes

Before a diskette can be used by the Apple][computer the diskette must be formatted. In other words, you cannot take brand new diskettes out of their box and start using them until they have been formatted. Therefore, DATAFAX contains a disk formatting module for this purpose.

To invoke the disk formatter, you must use option "F" of the DATAFAX sign-on screen. To get to the DATAFAX sign-on screen simply boot the DATAFAX diskette. The "F" is for "F)ormat a blank diskette." DATAFAX will display the message

```
Remember to hit RESET when you
are finished formatting
```

and wait for you to hit the space bar. Hitting the space bar will cause DATAFAX to display the message

```
APPLE DISK FORMATTER PROGRAM

FORMAT WHICH DISK (4, 5, 9..12) ?
```

At this point DATAFAX is ready to format a diskette. You may take the DATAFAX program diskette out of its drive if needed. Place the diskette to be formatted in the appropriate drive, then type the unit number of the drive followed by the return key.

The formatter will check to see that the disk being formatted is a new disk. If it is not a new disk (i.e. it's a diskette you've previously used), the formatter will ask

```
DESTROY DIRECTORY OF xxxxxxx ?
```

where xxxxxxx is the volume name of the diskette. If you are SURE you no longer need this diskette, enter "Y." Otherwise, enter "N."

The formatter will now indicate that it has begun formatting the diskette by displaying the message

```
NOW FORMATTING DISKETTE IN DRIVE xx
```

where xx is the disk unit number that contains the disk being formatted. The formatting process should take under half a minute and if the disk has been formatted successfully the

formatter will simply ask for the unit number again. Thus, you can format several disks one after another.

If the formatting process fails for any reason, the formatter displays the message

```
ERROR: UNABLE TO FORMAT DISK.
       DISKETTE WRITE PROTECTED,
       BAD MEDIA, OR BAD DRIVE.
```

In this case you should make sure you are formatting the correct diskette and try again. If you still cannot format the diskette then try formatting a different one.

When you have finished using the formatter, hit the RESET key on your Apple][to reboot and return to DATAFAX. (Make sure the DATAFAX program diskette has been returned to the disk drive from which your Apple boots.)

Appendix G - Types of Diskettes

There are three kinds of diskettes that you will encounter while using of DATAFAX.

The first is the "program" disk. This is the disk that contains the DATAFAX program, and the disk that boots DATAFAX on your computer. The disk supplied in this package, which you just backed up (you did, didn't you?), is a "program" disk.

The second type of disk is the "data" disk. A data disk is a disk that contains a DATAFAX data file. A data disk is set-up with the "S" command at the primary selection level.

The third type of disk is the "text" disk. A text disk is created using the DATAFAX Unload command, and is used as input to the Load command. Text disks are used to extract data from a data base and merge it into another database. For more information, see the Load and Unload commands.

Appendix H - Error Handling

This appendix describes the error handling facilities of DATAFAX. When an error occurs, DATAFAX displays an error message at the bottom of the screen followed by the message "Hit <space> to continue." DATAFAX then waits for you to hit the space bar before continuing. In addition, many error messages display an numeric error code at the end of the message.

This apperdix lists the error messages in alphabetical order, describing the possible cause of the error, its effect on your data, and action to be taken to rectify the error.

The DATAFAX error messages are as follows:

Attempt to read illegal screen ss

> DATAFAX has attempted to read a screen or folder that doesn't exist in the data file. This may be caused by previous errors or an internal program error, and should be brought to the attention of Link Systems.

Bad copy at block bb

> DATAFAX was unable to verify a copied diskette. The back-up should be attempted again with a different destination disk.

Cursor not on a word

> This error occurs in the DATAFAX editor when you have used the "mark key" command to make a word in a screen a key. The cursor must be position on a word in the screen, or one character to the right of the word.

Data base already exists on unit uu

> You have attempted to set-up a data file on a diskette that already contains a data file.

DataBase discrepancy - Key not found for record

> A folder contains a key that cannot be matched in the data file. The cause of the error is unknown as it probably happened when attempting to save a folder and getting an error at that time. The only way to rectify the problem is to unload and reload the data file.

Data base not found on unit uu

DATAFAX could not find a data file on the specified unit number. You probably have specified the wrong unit number or you do not have the correct diskette in the disk drive.

DATAFAX data file is full

The DATAFAX data file has been filled to capacity. This will require that some of the data contained in the file be deleted, or unloaded and then deleted. If after deleting part of your data you still get this message then you will have to unload the data file and reload it.

Error - blank line cannot be a Key

You have attempted to load a text file that contains a blank line as a Key. You must edit the text file and correct the problem, then attempt to load it again.

Error - duplicates edit function ff

While changing or redefining edit Keys, you have defined an edit Key that is the same as the edit Key for edit function ff. Choose a different Key for this edit function.

Error in memory buffer count

An internal program error has occured while conducting a search, and Link Systems should be contacted.

Error: No file space for BTree insertion

DATAFAX was unable to properly maintain the BTree in the data file. This error occurs when DATAFAX is saving the keys of a folder to disk. This error can cause the data file to be unusable. To determine this, try displaying the Keys with the Keys command. If any errors occur, or DATAFAX does not display all of the Keys, then the BTree in your data file has been corrupted. The only method of rectifying the problem is to unload the data file and reload it.

Error - no Keys for folder

You have attempted to load a text file that contains a folder with no Keys. You must edit the text file, correct the problem,, and attempt to load the text file again.

Error - premature end of input

DATAFAX has prematurely run out of input in a text file

while attempting to load it. The problem can be corrected by editing the text file, correcting it, and reloading it.

Error reading data file - error nn

This error occurs only in a command in which you have used the * search facility to search the entire data file. When you do an * search DATAFAX reads the data file from beginning to end, a block at a time, looking for folders. This error occurs when DATAFAX was unable to read a block in the data file and the error code indicates the cause of the error.

File not found

DATAFAX was unable to find the text file specified in the Load command. This can be caused if you mispell the file name, if you incorrectly specify the unit number on which the file can be found, or if you do not have the diskette containing the file mounted in a disk drive.

From and To unit cannot be the same

While attempting to back-up a diskette, you have specified the same unit number for both the original disk and the disk to be copied. The disks must be on two different disk units (drives).

Illegal use of the '*'

This error occurs while using the asterisk in a search, and indicates that the asterisk has been typed at an inappropriate point. Please review the use of the asterisk in chapter four.

Internal error deleting key

This is an internal program error and should not occur. If you have received this error, please contact Link Systems.

Key not found in file.

A key was specified in a search that is not in the data file.

Keyword already exists.

You have attempted to define the same key twice for a folder, or in the AutoKeys command.

(KOD) Unable to insert - xxxxxxxx

An internal program error occured while attempting to delete a key for the btree in the data file. If a previous error message was displayed, it should have indicated the cause for this error. Otherwise, Link Systems should be contacted. xxxxxxxx is the key in question, and this key may not be able to be used any longer. The only way to rectify this problem is to unload and reload the data file.

(KOI) Unable to delete xxxxxxxx

or

(KOI) Unable to insert xxxxxxxx

An internal program error has occured while attempting to save the keys of a folder in the data file. xxxxxxxx is the key being saved when the error occured. The keys for the folder are not saved properly. If no previous error message indicated the cause of this error, then Link Systems should be contacted.

Maximum file size is 2047 blocks

You have attempted to set up a data file larger than 2047 blocks.

Minimum file size is 10 blocks

You have attempted to set-up a data file that is smaller than 10 blocks.

No match found

DATAFAX was unable to find any folders containing the search keys specified.

No memory for key - MEMAVAIL mmmm

There is not enough system memory to maintain another key in memory. This happens when you have added an inordinate number of keys to a folder, and one has to wonder what you're doing with so many keys! This error does not affect the data file.

No space available for BTree insertion

DATAFAX was unable to allocate space in the data file to expand its BTree. This is caused when saving keys in a folder. It is followed by the message "Unable to save keys to disk."

xxxxxxxx not found in BTree.

An internal program error has occured. A key in a folder cannot be found in the data file's BTree. The only way of fixing this problem is to unload and reload the data file.

Null key record

DATAFAX has attempted to read a folder from disk in which there are no keys. This can happen when an error occured while SAVING the folder, and as a result, DATAFAX cannot read the folder. This folder is for all intents and purposes lost.

Please mount DATAFAX program disk

This error is caused when the DATAFAX program disk has been taken out of its disk drive so that the disk drive can be used to create a text file. Commands in which this is possible are Unload, Load, Print, and Keys. Each of these commands writes a text file to disk, and DATAFAX allows the program disk to be taken out of its drive in order to use the drive to write the text file. This error will repeat itself until the DATAFAX program disk is put back in the proper disk drive.

Printer not available

This happens when you attempt to print a folder and either you do not have a printer or you do not have the printer interface card properly installed in your computer. Please see the appendices B and C to determine if your printer card is in the right slot.

PtrLocation = 0

An internal program error has occured and Link Systems should be contacted.

Ran out of folders

This error occurs during a Scan. It is caused when DATAFAX cannot read from disk the correct number of folders that were scanned. This can be caused when errors occurred while saving folders. Frequently this message is preceded by another error message indicating the real problem.

Record size error nn

An internal program error has occured. Pleas contact Link Systems.

There are no keys to delete

This can occur in the DATAFAX editor or in the AutoKeys command when you have entered the "remove Key" command and there are no keys defined (and therefore, no keys to delete).

There is no next screen - use Insert

This occurs in the DATAFAX editor when you have entered the "next screen" command and you are editing the last screen of a folder (and therefore, there is NO next screen).

There is no previous screen

This occurs in the DATAFAX editor when you have entered the "prior screen" command and you are editing the first screen of a folder (and therefore, there is no prior screen).

Unable to close data file - error nn

DATAFAX was unable to close the data file. The error code indicates the error.

Unable to deallocate page

DATAFAX was unable to deallocate part of a folder that no longer needs to be stored on disk. This can happen when writing a previously created folder to disk, or deleting a folder. Its effect on the data file is to render a small part of it unusable in the future.

Unable to delete folder.

DATAFAX was unable to delete a folder from the data file. A previous error message should have indicated the cause of the error.

Unable to delete Key

or

Unable to delete Key from btree - xxxxxxx

or

Unable to delete Key from btree

DATAFAX was unable to delete a Key from the btree in the data file. A previous error message should have indicated the cause of the error. xxxxxxx is the Key DATAFAX was trying to delete from the file. This error will not normally cause serious problems in the data file. However,

use of the Key in question can cause unpredictable results. The only way to rid the data file of this problem is to unload and reload the data file.

Unable to insert Key

DATAFAX was unable to insert a Key into the data file's BTree. A previous message should have indicated the reason why. This error does not cause serious problems in the data file. However, it does affect the folder being saved to disk. The only method of rectifying the problem is to unload and reload the data file.

Unable to link to next screen

DATAFAX was unable to link the screens of a folder together on disk. This can cause a folder to "lose" some of its pages, never to be seen again.

Unable to link to previous screen

DATAFAX was unable to link the screens of a folder together on disk. This can cause a folder to "lose" some of its pages, never to be seen again.

Unable to open data base - error nn

DATAFAX was unable to open a data file. The error code indicates the cause of the error.

Unable to open text file - error nn

DATAFAX was unable to open a text file. This can occur immediately after you have typed the name of a text file for use by the Load, Unload, Keys, or Print commands. The error code indicates the cause of the error.

Unable to read block bb - error nn

DATAFAX was unable to read block bb from the data file. This happens when DATAFAX is attempting to expand its use of the data file. The error code indicates the cause of the error. This error message will probably be followed by subsequent messages giving more indication of the effect of the error on the data file.

Unable to read output disk - error nn

While verifying a disk during a back-up, DATAFAX was unable to read the disk that was copied. The error code indicates the error.

Unable to read screen from disk

DATAFAX was unable to read from disk one of the screens in a folder. This error is usually the result of attempting to read a folder that DATAFAX was unable to completely save (e.g. the file might have been full). This folder is no longer available.

Unable to read source disk - error nn

While attempting to back-up a diskette, DATAFAX was unable to read the original diskette. The error code indicates the cause of the error.

Unable to read xxxxxxx record # rr - error nn

DATAFAX was unable to read record number rr, of type xxxxxxx, from the data file. The cause of the error is indicated by the error code.

Unable to save edit keys - error nn

DATAFAX was unable to save the edit keys to the data file. The error code indicates the cause of the error.

Unable to save folder - no keys defined

This happens in the DATAFAX editor when you attempt to save a folder and haven't defined any keys for it. At least one key must be defined in order to save a folder.

Unable to set-up data base - error nn

DATAFAX was unable to set-up a data file. The error code indicates the cause of the error.

Unable to write allocated block - error nn

DATAFAX was unable to allocate a block in the data file. This is caused by a growing data file that has required DATAFAX to use a new block in the data file. The error code indicates the cause of the error.

Unable to write keys to disk

DATAFAX was unable to write the keys of a folder to disk. A previous error message should have indicated the cause of the error.

Unable to write output - error nn

While attempting to back-up a diskette, DATAFAX was unable

to write to the disk being copied. The error code indicates the cause of the error.

Unable to write page to disk

DATAFAX was unable to save a folder to disk. A previous error message should have indicated the cause of the error. The folder being saved is NOT saved to disk.

Unable to write to file - error nn

or

Unable to write to text file - error nn

This error can occur when

a. Listing the keys to a disk file with the Key command b. Printing a folder to a disk file c. Unloading folders to a text file

When this error occurs DATAFAX was unable to write to the text file being written. The error code indicates the cause of the error.

Unable to write xxxxxxxx record # rr - error nn

DATAFAX was unable to write record number rr, of type xxxxxxxx, to the data file. nn is the error code, which determines the cause of the error. A subsequent error message should be displayed indicating the effect of this error on the data file.

Unit no. must be 4, 5, 9, 10, 11 or 12

An illegal disk unit number was specified when attempting to set-up a data base, open a data base, or copy a diskette. Please see the appendix D for more information.

Value count error - nn

An internal program error has occured while conducting a folder search. Contact Link Systems.

Appendix I - Input/Output Error Codes

There are a number of conditions which can cause DATAFAX to generate a message including an I/O Error Number. Some of these error codes were generated by the operating system and are simply being reported by DATAFAX, while others are generated by DATAFAX in response to certain irregularities.

The error codes which may be displayed are as follows:

(1) The diskette being used contains an unreadable block. If this occurs with a data disk the only safe course of action is to perform a complete unload, followed by a reload to a new diskette.

(2) A bad volume number has been supplied to a system function. This error code should never appear. If it does, contact Link Systems.

(3) An illegal operation was attempted. This error code should never appear. If it does, contact Link Systems.

(4) This should never occur on the Apple. If it does, contact Link Systems.

(5) A device has been lost. This could possible occur if you remove a diskette while DATAFAX is in operation. If it does, replace the diskette and continue.

(6) A file can no longer be found in the directory of a diskette. This could occur if you remove a diskette while DATAFAX is in operation.

(7) Illegal filename. A legal filename is of the form

    #nn:ffffffffffffff

    where nn is the disk drive unit number and ffffffffffffff is the name of the file. The number sign and colon must appear as shown. nn must be a valid disk unit number (i.e. 4, 5, 9, 10, 11 and 12). ffffffffffffff must be at least one character and not longer than 15 characters. There can be no spaces within the file name.

(8) Insufficient space on disk. This is usually caused when

Contact Link Systems. This error can cause unpredictable results. If you are consistently receiving this error then you should unload and reload your data file.

(209) Unable to write block. DATAFAX was unable to write a block to the data file. The cause of the error is unknown and you should probably contact Link Systems. This error can result in unpredictable results and loss of data in the data file. The data file should be unloaded and reloaded to recover the good data in the file.